RECLAMATION

Managing Water in the West

Draft Environmental Assessment – Construction of a Small Regulatory Reservoir, Glenn County, CA

Orland Project, CA
Mid-Pacific Region

U.S. Department of the Interior
Bureau of Reclamation

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Contents

Introduction

The Bureau of Reclamation proposes to approve the construction of a 49 acre-foot regulatory reservoir adjacent to lateral 210 of the Orland Project to improve the efficiency of water management and flexibility of delivery.

This project has also been analyzed and the resulting analysis released for public comment under the California Environmental Quality Act (CEQA).

Purpose and Need

The purpose of the proposed reservoir is to improve the level of service and increase water conservation by increasing delivery flexibility and conveyance efficiency.

The project is needed to improve efficiency of use by reducing the incidence of over-irrigation in the fall and under-irrigation in the summer and spillage resulting from an inability to adjust flows frequently enough.

Under current operations, rotational irrigation deliveries may result in over-irrigation in the spring and fall and under-irrigation in the summer. Consequently, yields are less than optimum, causing an increasing number of growers to convert from surface irrigation with Orland Unit Water Users' Association (OUWUA) water to drip-irrigation systems supplied by private wells.

Because parcel sizes are generally small (averaging 20± acres) and canal flows are large (6 to 12 cubic feet per second), water is typically passed from one grower to the next every few hours. These frequent flow changes cannot be made with exact timing and accuracy, resulting in the potential for high canal spillage due to lack of regulating storage in the distribution system. Moreover, the OUWUA is currently restricted to two orders per day, 7 a.m. and 1 p.m., for water deliveries from the Black Butte Reservoir. Due to the inability to reduce Black Butte heading flows in the late afternoon or evening, water is spilled throughout the night when an irrigation "run" is finished or when an irrigator is unable to take the water.

The proposed project would save an estimated 3,400 acre-feet (af) of water per year. These savings could be applied toward other uses or would allow the OUWUA to operate through drought conditions with less reliance on conjunctive groundwater usage to augment its water supply.

Alternatives

The OUWUA considered several options when considering the modernization of the irrigation system in their feasibility report entitled *OUWUA Distribution System Modernization and Water Conservation Project Feasibility Report, 2003*. That study found the cost of modernizing the entire system prohibitive, but a second study (*Orland Project Regulating Reservoir Feasibility Investigation: Final Report, 2007*) focused on locating a regulating reservoir within a subarea of the system found two viable options.

The 2007 study considered locating a regulating reservoir within one of the "Beats," or ditch-rider areas, defined by the OUWUA. All sites were ranked on criteria of:

- Size and suitability for a reservoir.
- Access and ease of construction.
- Suitability of site soils and materials for construction.
- Availability of grid power.
- Potential for water savings.
- Existing land use/zoning and cost.
- Landowner's willingness to cooperate.
- Potential for environmental impact.

This analysis concluded locations in Beat 2 and Beat 6 were highly suitable, and further evaluation indicated that the location in Beat 2 was the more attractive. The Beat 2 site was evaluated further to explore alternative scenarios regarding the construction of the regulation reservoir and the upgrade of facilities located along the associated irrigation laterals.

Given the conclusions of the aforementioned studies, the following alternatives are evaluated as part of the environmental assessment.

Alternative 1: No Project (No Action)

Reclamation would not approve the proposed regulatory reservoir, leaving the project at risk of continued loss of customers due to service deficiencies. The current problems of spillage and suboptimal use of water would continue.

Spillage and other system losses might worsen over time, and groundwater use would likely rise due to the unpredictability of irrigation water delivery. It is anticipated that routine maintenance would continue to be performed by the OUWUA on irrigation laterals, weirs, gates, and other facilities, but no significant system improvement would be undertaken.

Alternative 2: Beat 6 Regulating Reservoir

The construction of a regulating reservoir in the Beat 6 subarea of the irrigation water delivery system was ranked comparably to the site in Beat 2. Under this alternative, the potential for water savings would be 3,616 af per year based on recorded spillage and other losses for 2006. The land use and soils pose no potential problems or limitations to the construction of a reservoir. There is a dairy nearby, which might create a water quality problem. Pumps and other equipment would be needed to move water in and out of the reservoir. With the addition of a regulating reservoir at this location, only laterals and properties serviced by Beat 6 would benefit from the project. Anticipated acquisition costs would be fairly high. This project would be located in Section 19, Township 22 North, Range 2 West, of the Mount Diablo base and meridian or at the southeast corner of the intersection of County Road P and County Road 9 (Wyo Road).

Apart from the lesser benefits to the Orland Project to be derived from use of this location and the need for use of pumps, this location is very similar to that of alternative 3, which is described in greater detail below.

Alternative 3: Beat 2 Regulating Reservoir (Preferred Alternative)

Water spillage and loss data recorded in 2006, comparable to the analysis for alternative 2, led to a predicted savings of 7,439 af per year. More in-depth study of the effect of the reservoir revised that number to 3,400 af per year, or slightly less than the estimate for the Beat 6 location. However, a regulating reservoir at this location would not require the installation of pumps, as water would be gravity fed into and out of the reservoir and its adjoining laterals.

The OUWUA, therefore, proposes to construct a 49 acre-foot irrigation canal regulating reservoir, with a useable capacity of 40 af at this location. According to the public land survey, the reservoir would be located at Township 22 North, Range 3 West, in Section 19 of the Mount Diablo base and meridian, on the west side of County Road DD, at the western terminus of County Road 14, and north of County Road 15, approximately 2.3 miles west of Orland.

Construction of a regulating reservoir at either location would require excavation of the reservoir site and construction of embankments. The soil would be disturbed over approximately 12 acres, and the applicant would be required to employ the best management practices for erosion control. A land-leveling permit from Glenn County would also be required to ensure that drainage on the site is adequately routed and that public facilities are protected. Rip-rap and geotextile fabrics would be used to reduce erosion from water entering and leaving the reservoir. Additionally, vegetation will be planted on the exterior

embankment to reduce erosion and assist in maintaining a stable slope. The canal banks from the nearest drop on Lateral 210 to the reservoir inlet would be raised 1 foot for a distance of 650 feet, using material excavated from the reservoir site. This proposal would be coincident with an upgrade of four gates controlling flow into sub-laterals and approximately 23 check structures on Lateral 210 to maintain delivery flow rates of irrigation water. The improvements to gates and check structures will not change the character of Lateral 210, and the lateral will continue to function as it has in the past. Upon completion, the reservoir will also improve flow regulation at the Becks Spill spillway, which is located on the west side of County Road DD and south of County Road 17.

The project will involve the use of heavy construction machinery and potentially haul trucks if any fill is required. Consequently, construction noise may exceed the noise standard from time to time; however, these occurrences would be of a short duration and generally compatible with the normal noise environment of this rural setting.

There would be a slight increase in traffic to the project area during construction, but no increased demand on public services. There would be the potential for the reservoir to be used in fire fighting, but given the sparse settlement of the area, this is unlikely to be an important change.

There would be no long-term change in employment as a result of the project or other social affects apart from the intended economic benefits of improved water management.

The proposed project would have the potential to harbor mosquitoes, a factor of potential importance, given the prevalence of human West Nile virus within the county.

Existing Environment

Physical

The project area is located within the upper Sacramento Valley, part of a large, flat alluvial plain known as the Central Valley, at elevations between 270 feet and 340 feet above sea level. It lies between the Hambright Creek to the north and the North Fork of Walker Creek to the south, an area perhaps more usefully characterized as roughly surrounding the city of Orland.

The deep alluvial nature of the valley results in a scarcity of lithic materials except for significant creeks that transport material from the surrounding mountain ranges. The project area is characterized by well-drained alluvial soils developed from medium-textured alluvium originating in areas of meta-sedimentary rocks and some sedimentary rocks. Characteristically, the Orland soils have grayish brown, slightly acid, medium-textured A horizons overlying similar colored C horizons, which are often stratified, moderately alkaline, and slightly calcareous. Frequently, these soils have gravelly substrata. The Orland series is mapped on the west side of the Sacramento Valley where it is used for orchards, irrigated field crops, and dry-land range.

Two active faults occur within approximately 50 miles of the Orland area, but Glenn County is in a relatively inactive seismic area. During the past 100 years, the county has experienced only minor earthquakes within its boundaries and secondary impacts from earthquakes centered out of the area. Projections of future impacts are low to moderate (Glenn County Safety Element of the General Plan, 1974). While there is also a potentially active fault west of the project known as the Corning fault, it has not ruptured the surface.

The climate consists of dry, hot summers and cool, wet winters. Rainfall averages about 20 inches annually. Most precipitation occurs from November to the first of April. Winter runoff occurs almost immediately after precipitation. Orland, and the adjacent Sacramento Valley, is warmed by a thermal belt, with very few frosts.

Biological

Vegetation within the project area consists of open, annual grasslands and includes wild oats, soft chess, ripgut brome, red brome, wild barley and foxtail fescue, broadleaf filaree, red stem filaree, turkey mullein, true and bur clover, popcorn flower, and others. Native grass of purple needle grass and Idaho fescue may exist in relic areas, and regionally, vernal pools occur in hardpan soil depressions. The project area appears to have been most recently used as irrigated livestock pasture and range.

Animals typically inhabiting these grasslands include the western rattlesnake, common garter snake, western fence lizard, black-tailed jackrabbit, California ground squirrel, Botta's pocket gopher, western harvest mouse, California vole, badger, coyote burrowing and short-eared owl, horned and western meadowlark, turkey vulture, crow, American kestrel, black-shouldered kite, and prairie falcon.

Special status plants and wildlife may occur near the alternative 2 site, but none are known to reside on-site, although the CEQA document called for a preconstruction survey for nesting raptors and burrowing owls. Swainson's Hawks may forage in the area as the open pasture provides foraging habitat, but

the presence of a reservoir may increase, rather than diminish, the abundance of prey. Special status plants and wildlife are also present near Becks Spill where excess water from irrigation laterals spills into a tributary of Walker Creek.

Riparian and other sensitive natural communities are absent at both sites, although a small, isolated area of wetland vegetation occupies the southeast corner of the alternative 3 site, but it apparently is a feature of relatively recent origin. It apparently resulted from blockage of a natural drain by construction of Lateral 210 about 100 years ago. Given that insufficient time has elapsed for the development of hydric soils that are one of three defining characteristics of wetlands protected by law, this seasonally wet area is not a wetland as defined by law, nor is it suitable habitat for vernal pool fairy shrimp.

Social

Currently, the properties are vacant and used as irrigated pasture and quite similar to the surrounding fields. Historically, they have been used for row crops as well as irrigated pasture. Both contain soils that, when irrigated, are classified as prime farmland, but would not be considered prime soils without the availability of the irrigation water. Reservoirs are, therefore, considered a compatible agricultural use under Title 15 of the Glenn County Code. Indeed, in many areas of Glenn County, irrigation waters brought in from a surface water source make possible much of the current agricultural production.

Both potential sites are relatively remote from schools and homes, with the site for alternative 2 being about a mile from the nearest school and within one-half mile of only 15 homes, while the site of the preferred alternative is approximately 3 miles from the nearest school and within one-half mile of only 13 homes. Neither site is in a visually sensitive area.

The alternative 2 site may have been leveled for irrigation at some point in the past, but the site of alternative 3 has not. An archeological survey conducted by the URS Corporation on April 2, 2008, found no cultural resources at the alternative 3 site, although a records search identified two previously recorded cultural resources near the project area. They include a historic cattle guard about 800 feet from the nearest portion of the construction site and a water conveyance ditch recorded as Canal 211.

The system of canals and ditches that comprise a major portion of the historic Orland Project itself are of historic interest as part of one of the oldest Federal reclamation projects in the country and one of the first undertaken in California. It was authorized in October 1907 and began delivering water to the first farm units at the start of the 1910 growing season.

Further characterization of the Orland-Artois service area, especially the socio-economics, can be found in the *Environmental Assessment, Long-Term Renewal of Water Service Contracts in the Black Butte Unit, Corning Canal Unit, and Tehama-Colusa Canal Unit of the Sacramento River Division, Central Valley Project, California, February 2005.*

Environmental Consequences

Hydrology and Water Quality

No Action Alternative

No changes to existing water resources would occur under the no action alternative.

Reclamation's Preferred Alternative

The proposed action would only change the place of use from the OUWUA's service area to the similar lands of the Orland-Artois Water District (OAWD) immediately to the south. There would be no marked changes in the form of use and, thus, no adverse impacts upon water quality. Regionally, the volume of water used and the drainage flows would be unaffected.

According to the flood inundation maps for Glenn County, this project is outside any designated inundation area. The proposed reservoir would hold approximately 49 af at maximum capacity, with an operational capacity of about 40 af. Any failure or breach of the reservoir embankments would result in some flooding in an area of pasture, row crops, and open space areas where there is very little housing. However, the Geotechnical Feasibility Study found little chance that embankment failure would occur due to any seismic concerns.

Geology and Soils

No Action Alternative

There would be no change from existing conditions.

Preferred Alternative

About 12 acres of cropland would be inundated and removed from production, but the net effect would be to maintain the use of a substantially larger area of cropland whose characterization as prime farmland is predicated upon the availability of water.

Biological Resources/Endangered Species

No Action Alternative

No changes in existing agricultural patterns or modifications in the amount or timing of water deliveries, which could affect biological resources or endangered species, would occur under the no action alternative.

Preferred Alternative

The effects of continued water use in the OAWD service area were examined prior to the renewal of the applicable water service contract and determined to have no significant impact on biological resources. This proposed action falls well within the volume of water examined in the long-term contract renewal analysis, and the lack of change in subsequent years means that that conclusion still applies. The preferred alternative would simply maintain the status quo, apart from the small area of inundation. Therefore, no affect would occur with respect to listed species, which are absent from the area to be inundated. Similarly, listed fish are absent in the portions of Stony Creek upstream of the Black Butte Dam and the small afterbay below the Black Butte Dam from which water would be diverted to the regulatory reservoir.

Agricultural Resources/Land Use

No Action Alternative

The present shift to groundwater use would be expected to continue, potentially to the detriment of the area's long-term productivity.

Preferred Alternative

There would be increased water use efficiency, which, in turn, would have agricultural benefits. The effect would be to sustain continued productivity.

Socio-Economic Resources

No Action Alternative

No changes to existing social resources would occur under the no action alternative.

Preferred Alternative

The project would have temporary impacts on noise levels for a few homes and is not expected to pose a problem with respect to mosquito production.

The project would involve the use of heavy construction machinery. The general project area is sparsely populated, with only four residences within 1,000 feet of the project. However, construction activities are exempt from the noise standards from 7 a.m. to 7 p.m., and any exceedance of the noise standard would be brief.

After construction activities have ceased, there will be no additional noise generated from the site, as all water in and out of the reservoir will be gravity fed.

Given the size and improvements necessary to the site, county officials deem the reservoir would not create a mosquito problem in the area. However, county officials would monitor the site to assure that it is properly maintained so as not to harbor mosquitoes and other vectors, which may pose a threat to human health. Additionally, the applicant has voluntarily collaborated with the Glenn County Mosquito and Vector Control District and Health Services Agency of the county to establish a vector management plan for the project.

Cultural Resources

No Action Alternative

Nothing would change. Hence, there would be no effect on cultural resources.

Preferred Alternative

Measures would be taken to avoid damage or disturbance to CA-GLE-520-H, the historic cattle guard, located about 800 feet from the nearest project construction site. This would probably be accomplished by marking the concrete feature with bright-colored flagging tape while project activities are taking place and by forewarning field crews and subcontractors of the presence of the historic feature. With regard to historic Canal 211, no improvements are currently planned, so no impacts should occur at that location.

If any additional cultural resources, i.e., artifacts, bones, or shell, that are not described in the initial archaeological report are discovered during construction activities, all work within 35 feet of the discovery would cease until the nature of the discovery is assessed by a qualified archaeologist.

Indian Trust Assets

No Action Alternative

There would be no change and, therefore, no affect.

Preferred Alternative

The closest Indian Trust Assets are the Grindstone Rancheria (Rancheria), which borders Stony Creek downstream of the Stony Gorge Dam, and the casinos near Corning and Colusa, both of which are one-half hour or more from the Orland-Artois service area. Given that the stream is fully adjudicated, the preferred alternative would not affect the Rancheria's water supply, and the use of the water is too far from any of the Rancheria's to affect uses of their lands.

Environmental Justice

No Action Alternative
No change would occur.

Preferred Alternative
The no action or the preferred alternative would not disproportionately affect minority and low-income populations. The benefits of improved water management would accrue to the entire community; the farmers, their employees, and the businesses they use, would benefit in proportion to the usual distribution of the benefits of agricultural production.

Cumulative Impacts

No Action Alternative
No change would occur.

Preferred Alternative
No growth-inducing impacts are expected, as the only affect would be to sustain the status quo.

Consultation and Coordination

Given the lack of effect on listed species, no Endangered Species Action, section 7 consultation with the U.S. Fish and Wildlife Service and the National Oceanic and Atmospheric Administration, National Marine Fisheries Service, was required.